

# Mojave Desert Air Quality Management District

# Staff Report for Amendments to Rule 1157 – *Boilers and Process Heaters*

Amended on January 22, 2018

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#### **List of Acronyms**

APCO Air Pollution Control Officer

ASTM American Society for Testing and Materials

BACT Best Available Control Technology

BARCT Best Available Retrofit Control Technology

CARB California Air Resources Board

CCAA California Clean Air Act

CEQA California Environmental Quality Act

CO Carbon Monoxide

CTG Control Technique Guidelines

FCAA Federal Clean Air Act

FONA Federal Ozone Nonattainment Area H&S Code California Health & Safety Code

HHV High Heating Value
MDAB Mojave Desert Air Basin

MDAQMD Mojave Desert Air Quality Management District

MMBtu Million British Thermal Units

NO<sub>x</sub> Oxides of Nitrogen

O<sub>2</sub> Oxygen

PPMV Parts Per Million by Volume

RACT Reasonably Available Control Technology SCAQMD South Coast Air Quality Management District

SEGS Solar Electric Generating System, Located at Harper Lake

SIP State Implementation Plan

SO<sub>x</sub> Oxides of Sulfur

USEPA U.S. Environmental Protection Agency

VOC Volatile Organic Compounds

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#### STAFF REPORT Rule 1157 – Boilers and Process Heaters

#### I. PURPOSE OF STAFF REPORT

A staff report serves several discrete purposes. Its primary purpose is to provide a summary and background material to the members of the Governing Board. This allows the members of the Governing Board to be fully informed before making any required decision. It also provides the documentation necessary for the Governing Board to make any findings, which are required by law to be made prior to the approval or adoption of a document. In addition, a staff report ensures that the correct procedures and proper documentation for approval or adoption of a document have been performed. Finally, the staff report provides evidence for defense against legal challenges regarding the propriety of the approval or adoption of the document.

#### II. EXECUTIVE SUMMARY

The FCAA requires areas designated non-attainment and classified moderate or above to implement Reasonably Available Control Technology (RACT) for sources subject to Control Techniques Guidelines (CTG) documents issued by United States Environmental Protection Agency (USEPA) for "major sources" of volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>X</sub>) which are ozone precursors. The District adopted the *2015 8-Hour Reasonably Available Control Technology – State Implementation Plan Analysis (RACT SIP Analysis)* in February, 2015 which committed to amending Rule 1157 – *Boilers and Process Heaters* to current Federal RACT.

District Rule 1157- *Boilers and Process Heaters*, was adopted on October 26, 1994 and last amended on May 19, 1997. The rule was approved as RACT into the SIP in 1999. (64 FR 19277, 04/20/1999). Previous versions of this rule addressed requirements outlined in the applicable CTG's published in the 1990s: *NOx Emission from Process Heaters* (EPA-453/R-93-034 September 1993), *NOx Emissions from Industrial, Commercial & Institutional Boilers* (EPA-453/R-94-022 March 1994) and Alternative Control Techniques Document, *NOx Emissions from Utility Boilers* (EPA-453/R-94-023 March 1994).

The amendments are based on the Control Technology Guidelines (CTGs), and various district rules deemed as fulfilling Reasonably Available Control Technology (RACT) requirements, including but not limited to: Imperial County Air Pollution Control District (ICAPCD) Rule101 – Definitions (82 FR 26594, 06/08/2017), and Rule 400.2 – Boilers, Process Heaters and Steam Generators (78 FR 896, 01/07/2013); Sacramento Metro Air Quality Management District (SMAQMD) Rule 411 – NOx from Boilers, Process Heaters and Steam Generators (74 FR 20880, 05/06/2009); San Joaquin Air Pollution Control District (SJAPCD) Rule 4352 – Solid Fuel Fired Boilers, Steam Generators and Process Heaters (77 FR 66548, 11/06/2012); and South Coast Air Quality Management District (SCAQMD) Rule 1146 Emission of Oxides of Nitrogen from industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (79 FR 57442, 11/01/2013).

The amendments to Rule 1157 address the *RACT SIP Analysis* commitments. All of the amendments update rule definitions and improve rule clarity. Specifically the amendments in Rule 1157 strengthen RACT NOx limits from 70 to 30 ppmv for gaseous fuel, and adds a 40 ppmv limit for liquid fuels. For BARCT 30 ppmv is maintained for gaseous fuel, and 40 ppmv remains applicable to liquid fuels. Solid fuels are no longer used in the District and thus all reference to solid fuels have been removed from the rule. The SEGS exemption has been strengthened from 80 ppmv to 70 ppmv when operating at more than 40 percent (40%) of rated heat input or when the permit unit is located at SEGS III, IV, VII or IX. Exemptions were added for clarity regarding units subject to District Rules 1158 or 1161, and units located outside of the FONA (Federal Ozone Nonattainment Area).

#### III. STAFF RECOMMENDATION

MDAQMD Staff and the Technical Advisory Committee recommended that the Governing Board of the Mojave Desert Air Quality Management District (MDAQMD or District) amend Rule 1157 – *Boilers and Process Heaters* and approve the appropriate California Environmental Quality Act (CEQA) documentation. This action is necessary to satisfy 42 U.S.C. §§7511a (FCAA §182) which requires that ozone non-attainment areas implement RACT for sources that are subject to CTGs and for major sources of ozone precursors.

Rule 1157 has been amended.

#### IV. LEGAL REQUIREMENTS CHECKLIST

The findings and analysis as indicated below are required for the procedurally correct to amend Rule 1157 – *Boilers and Process Heaters*. Each item is discussed, if applicable, in Section V. Copies of related documents are included in the appropriate appendices.

### FINDINGS REQUIRED FOR RULES & REGULATIONS:

- X Necessity
- X Authority
- X Clarity
- X Consistency
- X Nonduplication
- X Reference
- X Public Notice & Comment
- X Public Hearing

# REQUIREMENTS FOR STATE IMPLEMENTATION PLAN SUBMISSION (SIP):

- X Public Notice & Comment
- X Availability of Document
- X Notice to Specified Entities (State, Air Districts, USEPA, Other States)
- X Public Hearing
- <u>X</u> Legal Authority to adopt and implement the document.
- $\underline{X}$  Applicable State laws and regulations were followed.

### ELEMENTS OF A FEDERAL SUBMISSION:

X Elements as set forth in applicable Federal law or regulations.

### CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS (CEQA):

- N/A Ministerial Action
- X Exemption
- N/A Negative Declaration
- N/A Environmental Impact Report
- X Appropriate findings, if necessary.
- X Public Notice & Comment

### SUPPLEMENTAL ENVIRONMENTAL ANALYSIS (RULES & REGULATIONS ONLY):

- X Environmental impacts of compliance.
- N/A Mitigation of impacts.
- <u>N/A</u> Alternative methods of compliance.

#### **OTHER:**

- <u>X</u> Written analysis of existing air pollution control requirements
- N/A Economic Analysis
- X Public Review

#### V. DISCUSSION OF LEGAL REQUIREMENTS

#### A. REQUIRED ELEMENTS/FINDINGS

This section discusses the State of California statutory requirements that apply to the amendment to Rule 1157. These are actions that need to be performed and/or information that must be provided in order to amend the rule in a procedurally correct manner.

#### 1. State Findings Required for Adoption of Rules & Regulations:

Before adopting, amending, or repealing a rule or regulation, the District Governing Board is required to make findings of necessity, authority, clarity, consistency, non-duplication, and reference based upon relevant information presented at the hearing. The information below is provided to assist the Board in making these findings.

#### a. Necessity:

The amendment to Rule 1157 is necessary to satisfy 42 U.S.C. §§7511a (FCAA §182) which requires that ozone non-attainment areas implement RACT for sources that are subject to CTGs and for major sources of ozone precursors.

#### b. Authority:

The District has the authority pursuant to California Health and Safety Code (H&S Code) §40702 to adopt, amend or repeal rules and regulations.

#### c. Clarity:

The amendment of Rule 1157 is clear in that it is written so that the persons subject to the Rule can easily understand the meaning.

#### d. Consistency:

The amendment of Rule 1157 is in harmony with, and not in conflict with or contradictory to any State law or regulation, Federal law or regulation, or court decisions

#### e. Nonduplication:

CTG's and RACT requirements are not directly enforceable; therefore this rule is necessary to enforce standards and is non-duplicative. The amendment to Rule 1157 does not impose the same requirements as any existing State or Federal law or

regulation because the District is amending this rule in response to federal VOC RACT requirements.

#### f. Reference:

The District has the authority pursuant to H&S Code §40702 to adopt, amend or repeal rules and regulations.

#### g. Public Notice & Comment, Public Hearing:

Notice for the public hearing for the proposed amendment of Rule 1157 was published on December 22, 2017. See Appendix "B" for a copy of the public notice. See Appendix "C" for copies of comments, if any, and District responses.

#### 2. Federal Elements (SIP Submittals, Other Federal Submittals).

Submittals to USEPA are required to include various elements depending upon the type of document submitted and the underlying Federal law that requires the submittal. The information below indicates which elements are required for the amendment of Rule 1157 and how they were satisfied.

#### a. Satisfaction of Underlying Federal Requirements:

The Federal Clean Air Act (FCAA) requires areas designated nonattainment and classified moderate and above to implement RACT for sources subject to CTG documents issued by USEPA and for "major sources" of VOCs and NO<sub>X</sub> that are ozone precursors. Because the District has an existing SIP rule for this CTG category, the District committed to adopting an updated RACT rule for boilers and process heaters. The amendments are based on the CTGs and various district rules deemed as fulfilling RACT requirements, including but not limited to: Imperial County Air Pollution Control District Rule 101 – Definitions and Rule 400.2 – Boilers, Process Heaters and Steam Generators; Sacramento Metro Air Quality Management District Rule 411 – NOx from Boilers, Process Heaters and Steam Generators; San Joaquin Air Pollution Control District Rule 4352 – Solid Fuel Fired Boilers. Steam Generators and Process Heaters; and South Coast Air Quality Management District Rule 1146 - Emission of Oxides of Nitrogen from industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters.

#### b. Public Notice and Comment:

Notice for the public hearing for the amendment of Rule 1157 was published December 22, 2017. See Appendix "B" for a copy of

the public notice. See Appendix "C" for copies of comments, if any, and District responses.

#### c. Availability of Document:

Copies of the proposed amendment of Rule 1157 and the accompanying draft staff report were made available to the public on November 29, 2017. The proposed amendments were reviewed by the Technical Advisory Committee, a committee consisting of a variety of regulated industry and local governmental entities, on January 9, 2018.

#### d. Notice to Specified Entities:

Copies of the proposed amendment of Rule 1157 and the accompanying draft staff report were sent to all affected agencies. The proposed amendments were sent to the California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) on November 27, 2017.

#### e. Public Hearing:

A public hearing to consider the proposed amendment of Rule 1157 was set for January 22, 2018.

#### f. Legal Authority to Adopt and Implement:

The District has the authority pursuant to H&S Code §40702 to adopt, amend, or repeal rules and regulations and to do such acts as may be necessary or proper to execute the duties imposed upon the District.

#### g. Applicable State Laws and Regulations Were Followed:

Public notice and hearing procedures pursuant to H&S Code §\$40725-40728 have been followed. See Section (V)(A)(1) above for compliance with state findings required pursuant to H&S Code §40727. See Section (V)(B) below for compliance with the required analysis of existing requirements pursuant to H&S Code §40727.2. See Section (V)(C) for compliance with economic analysis requirements pursuant to H&S Code §40920.6. See Section (V)(D) below for compliance with provisions of the CEQA.

#### B. WRITTEN ANALYSIS OF EXISTING REQUIREMENTS

H&S Code §40727.2 requires air districts to prepare a written analysis of all existing federal air pollution control requirements that apply to the same equipment or source type as the rule modified by the district.

The FCAA requires areas designated non-attainment for ozone and classified moderate and above to adopt and maintain RACT rules to control the emissions of VOCs and NO<sub>X</sub> for categories which the USEPA has adopted a CTG and for all categories where there are major stationary sources of air pollution (42 U.S.C. §7511a(b)(2), FCAA 182(b)(2)). For purposes of the FCAA, portions of the District have been designated non-attainment for ozone and classified severe-17.

District Rule 1157- *Boilers and Process Heaters* was last amended on May 19, 1997, and approved as RACT into the SIP in 1999. (64 FR 19277, 04/20/1999). Previous versions of this rule addressed requirements outlined in the applicable CTG's published in the 1990s: *NOx Emission from Process Heaters* (EPA-453/R-93-034 September 1993), *NOx Emissions from Industrial, Commercial & Institutional Boilers* (EPA-453/R-94-022 March 1994) and Alternative Control Techniques Document, *NOx Emissions from Utility Boilers* (EPA-453/R-94-023 March 1994). The amendments strengthen the rule to address RACT as set forth in other rules/regulations approved into the SIP by USEPA subsequent to 1999.

#### C. ECONOMIC ANALYSIS

#### 1. General

RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762, September 17, 1979). Rule 1157 is equivalent to rules that were determined by USEPA to fulfill RACT <sup>1</sup> This determination by USEPA means that the provisions of Rule 1157 are, by definition, cost effective.

#### 2. Incremental Cost Effectiveness

Pursuant to H&S Code §40920.6, incremental cost effectiveness calculations are required for rules and regulations which are adopted or amended to meet the California Clean Air Act (CCAA) requirements for Best Available Retrofit Control Technology (BARCT) or "all feasible measures" to control volatile

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<sup>&</sup>lt;sup>1</sup> Imperial County Air Pollution Control District (ICAPCD) Rule101 – *Definitions* (82 FR 26594, 06/08/2017), and Rule 400.2 – *Boilers, Process Heaters and Steam Generators* (78 FR 896, 01/07/2013); Sacramento Metro Air Quality Management District (SMAQMD) Rule 411 – *NOx from Boilers, Process Heaters and Steam Generators* (74 FR 20880, 05/06/2009); San Joaquin Air Pollution Control District (SJAPCD) Rule 4352 – *Solid Fuel Fired Boilers, Steam Generators and Process Heaters* (77 FR 66548, 11/06/2012); and South Coast Air Quality Management District (SCAQMD) Rule 1146 *Emission of Oxides of Nitrogen from industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters* (79 FR 57442, 11/01/2013).

compounds (VOCs), oxides of nitrogen (NOx) or oxides of sulfur (SOx). Previous iterations of this rule outlined BARCT requirements. Those requirements were previously analyzed, and have not changed in this version of the rule; therefore further BARCT cost effectiveness analysis is not necessary.

#### D. ENVIRONMENTAL ANALYSIS (CEQA)

Through the process described below the appropriate CEQA process for the amendment of Rule 1157 was determined.

- 1. The amendment of Rule 1157 meets the CEQA definition of "project". It is not a "ministerial" action.
- 2. The amendment of Rule 1157 is exempt from CEQA review because the amendments are more stringent and provide more clarity than the prior versions and does not create any adverse impacts on the environment. Because there is no potential that the amendments might cause the release of additional air contaminants or create any adverse environmental impacts, a Class 8 categorical exemption (14 Cal. Code Reg. §15308) applies. Copies of the documents relating to CEQA can be found in Appendix "D".

#### E. SUPPLEMENTAL ENVIRONMENTAL ANALYSIS

1. Potential Environmental Impacts

The potential environmental impacts of compliance with the amendment of Rule 1157 does not introduce requirements for new equipment or control technologies; therefore these rules do not pose any additional environmental impact.

2. Mitigation of Impacts

N/A

3. Alternative Methods of Compliance

N/A

#### F. PUBLIC REVIEW

See Staff Report Section (V)(A)(1)(g) and (2)(b), as well as Appendix "B"

#### VI. TECHNICAL DISCUSSION

#### A. SOURCE DESCRIPTION

The District has approximately 50 boilers and/or process heaters that are subject to this rule. The types of facilities having this kind of equipment include: railways, medical

centers, structural aerospace manufactures, military bases, mining operations, solar generating facilities, prisons and food and drink manufacturers.

#### B. EMISSIONS

The amendments to Rule 1157 address the RACT SIP Analysis commitments. The amendments update rule definitions and rule clarity. Specifically the amendments in Rule 1157 strengthen RACT NOx limits from 70 to 30 ppmv for gaseous fuel, and adds a 40 ppmv limit for liquid fuels. For BARCT 30 ppmv is maintained for gaseous fuel, and 40 ppmv remains applicable to liquid fuels. Solid fuels are no longer used in the District and thus all reference to solid fuels have been removed from the rule The SEGS exemption has been strengthened from 80 ppmv to 70 ppmv when operating at more than 40 percent (40%) of rated heat input or when the permit unit is located at SEGS III, IV, VII or IX.

#### C. CONTROL REQUIREMENTS

The amendment to Rule 1157 would address control requirements through implementing lower emissions limits.

#### D. RULE SUMMARY

This section gives a brief overview of the amendments to Rule 1157.

Solid fuels have been removed from all sections of this Rule. Minor format changes have been made throughout which improve clarity and consistency and are not substantive. These changes include, but are not limited to, capitalization of defined terms, relocation of commonly defined terms to Rule 102.

Rule 1157 – Boilers and Process Heaters

The definitions in section (B) of Rules 1157 have been modified to add definitions which are specific to this rule, and remove definitions that are contained in Rule 102.

**Definitions:** 

Definitions Added: Gaseous Fuel and Liquid Fuel.

Definitions Removed: Best Available Retrofit Control Technology, Boiler or Steam Generator, Federal Ozone Nonattainment Area (FONA), Heat Input, Higher Heating Value (HHV), Parts per Million by Volume (ppmv), Permit Unit, Reasonably Available Control Technology (RACT), Rated Heat Input.

Substantive updates to the Rule 1157 are as follows:

Section (C):

Section (C)(3)(a)(ii) is changed, strengthening NOx limitation for gaseous fuels from 70 to 30 ppmv. Section (C)(3)(a)(iii) added requirements to impose a 40 ppmv limitation for liquid fuels for equipment subject to RACT requirements. Previous Section (C)(3)(a)(iv) removed solid fuel requirement from the rule. Section (C)(4)(a)(iii) BARCT limit of 40 ppmv is modified to remain applicable only to liquid fuels.

#### Section (D):

Section (D)(2)(b) has been strengthened to limit to 70 ppmv from 80 ppmv the exemption applying to SEGS VI or SEGS VII located in Kramer Junction, when operating at more than 40% of rated heat input, or when the permit unit is located at SEGS III, IV, V, VIII or IX at Harper Lake under all operating conditions. Section (D)(4) adds an exemption that equipment subject to District Rules 1158 or 1161 are not subject to 1157. Section (D)(5) adds an exemption to permitted units outside of the FONA.

#### Section (G):

Section (G)(1) has been removed because the dates are no longer applicable.

#### E. SIP HISTORY

- 1. SIP History.
  - a. SIP in the San Bernardino County Portion of MDAQMD

On July 1, 1993 the MDAQMD was formed pursuant to statute. Pursuant to statute it also retained all the rules and regulations of the San Bernardino County Air Pollution Control District (SBCAPCD) until such time as the Governing Board of the MDAQMD wished to adopt, amend or rescind such rules. The MDAQMD Governing Board, at its very first meeting, reaffirmed all the rules and regulations of the SBCAPCD.

Rule 1157 was originally adopted by the Mojave Desert AQMD on October 26, 1994 and subsequently amended on May 19, 1997, Rules 1157 was included in the State Implementation Plan (SIP) for the MDAQMD (64 FR 19277, 04/20/1999). Therefore the applicable SIP Rule for the entire MDAQMD is the May 19, 1997 version.

b. SIP in the Riverside County (Blythe/Palo Verde Valley) Portion of the MDAQMD

One of the provisions of the legislations which created the MDAQMD allowed areas contiguous to the MDAQMD boundaries and within the same air basin to leave their current air district and become a part of the MDAQMD. On July 1, 1994 the area commonly known as the Palo Verde Valley in Riverside

County, including the City of Blythe, left the South Coast Air Quality Management District (SCAQMD) and joined the MDAQMD.

Since USEPA adopts SIP revisions in California as effective within the jurisdictional boundaries of local air districts, when the local boundaries change the SIP as approved by USEPA for that area up to the date of the change remains as the SIP in that particular area. Upon annexation of the Blythe/Palo Verde Valley the MDAQMD acquired the SIP prior to July 1, 1994 that was effective in the Blythe/Palo Verde Valley. Therefore, the SIP history for the Blythe/Palo Verde Valley Portion of the MDAQMD is based upon the rules adopted and approved for that portion of Riverside County by SCAQMD.

As of July 1, 1994 SCAOMD had 3 Rules applicable to the source category of boilers and process heaters<sup>2</sup>. These rules were Rule 1109 - Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries; 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters; and 1146.1 - Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. SCAOMD Rule 1109 does not appear to have ever been submitted or approved as a SIP revision. SCAQMD Rule 1146 was originally adopted September 9, 1988 and subsequently amended on January 6, 1989, May 13, 1994, June 16, 2000, November 17, 2000, September 5, 2008, and November 1, 2013. Thus the applicable rule in effect upon annexation of the Blythe/Palo Verde Valley area of the MDAQMD was the May 13, 1994 version which was submitted on July 11, 1994 as a SIP revision after the annexation had occurred and therefore such submission is not applicable to the annexed area. Likewise SCAQMD Rule 1146.1 was originally adopted October 5, 1990 and subsequently amended July 10, 1992, May 13, 1994, September 5, 2008, and November 1, 2013. Once again the applicable rule in effect upon annexation of the Blythe/Palo Verde Valley area of the MDAQMD was the May 13, 1994 version which was submitted on July 11, 1994 as a SIP revision after the annexation had occurred and therefore such submission is not applicable to the annexed area<sup>3</sup>.

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<sup>&</sup>lt;sup>2</sup> SCAQMD Rule 1146.2 - *Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters* was initially adopted on January 9, 1998 after the Blythe/Palo Verde Valley had joined the MDAQMD and this is not relevant to this analysis.

<sup>&</sup>lt;sup>3</sup> Please note that the 5/13/1994 versions 1146 and 1146.1 for SCAQMD were subsequently approved at 40 CFR 52.220(c)(198)(i)(H)(1) on 9/6/1995 at 60 FR 46222.

Since Rule 1157 was amended after the annexation and submitted and approved for the entire MDAQMD the applicable SIP version is May 19, 1997 for the Blythe/Palo Verde Valley area of the MDAMD.

#### 2. SIP Analysis.

The District requests that CARB submit the amendment of Rule 1157 to replace the SIP versions in effect for the entire MDAQMD. The District is also requesting explanatory language be included in the Technical Support Document to clearly set forth that SCAQMD Rules 1146 and 1146.1 are not included in the applicable SIP for the Riverside County Portion of the District.

In order to replace existing SIP rules the District is required to show that the amendments are not less stringent than the provisions currently in the SIP. Rule 1157 is more stringent than the previous SIP version because the amendments lower (strengthen) emission limits. Therefore, the amendment to Rule 1157 is more stringent than the 1997 version of the rule.

#### Appendix "A"

# Rule 1157 – *Boilers and Process Heaters*Iterated Version

The iterated version is provided so that the changes to an existing rule may be easily found. The manner of differentiating text is as follows:

- 1. <u>Underlined text</u> identifies new or revised language.
- 2. <u>Lined out text</u> identifies language which is being deleted.
- 3. Normal text identifies the current language of the rule which will remain unchanged by the adoption of the proposed amendments.
- 4. [Bracketed italicized text] is explanatory material that is not part of the proposed language. It is removed once the proposed amendments are adopted.

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# RULE 1157 Boilers and Process Heaters

#### (A) General

- (1) Purpose:
  - (a) The purpose of this rule is tTo limit Oxides of Nitrogen (NOx) and Carbon Monoxide (CO)-emissions from industrial, institutional, and commercial Bboilers, Seteam Generators, and Pprocess Hheaters.
- (2) Applicability:
  - (a) This rule applies to new and existing Bboilers, Ssteam Ggenerators, and Pprocess Hheaters located within the Federal Ozone Non-attainment Attainment Area with Rrated Hheat Inputs of greater than or equal to 5 million Btu per hour (MMBtu/hr) which are used in all industrial, institutional, and commercial operations, including permit units used by Independent Ppower Pproducers and or a Ceogeneration projects Facility.
  - (b) This rule does not apply to permit units whose sole purpose is the production of steam for electrical power generating equipment when the permit unit is located at a facility directly regulated by a Public Utilities Commission.
- (3) Applicability of other District Rules: Compliance with this rule does not exempt a person from complying with any other applicable State, federal or local law, statute, code, ordinance, rule, or regulation.

#### (B) Definitions

- (1) For the purposes of this rule, the following definitions shall apply: The definitions contained in District Rule 102 Definition of Terms shall apply unless the term is otherwise defined herein: [Definitions that are commonly used throughout the MDAQMD rule book have been relocated to existing Rule 102 which was most recently amended June 12, 2017, and will be amended concurrently with this amendment.]
  - (a) "Annual Heat Input" <u>T</u>the total heat input of fuels, in Btu, burned by a permit unit in a calendar year, as determined from the higher heating value and cumulative annual usage of each fuel. [Move to 102]
  - (c) "Boiler or Steam Generator" any combustion equipment (fired with any fuel) used to produce steam. Boiler or steam generator does not include

any waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion turbine. [in 102]

- (bd) "Cogeneration Facility" Aa facility which produces:
  - (i) electric energy; and
  - (ii) steam or forms of useful energy (such as heat) which are used for industrial or commercial heating or cooling purposes.
- (ce) "Emissions Control Plan" Aa document which outlines how an existing facility will comply with the requirements of this rule. The plan shall contain the following:
  - (i) a list of all permit units with their Refated Heat Inputs and estimated Annual Heat Inputs; and
  - (ii) for permit units subject to subsection (C)(3)(a) or (C)(4)(a), for each permit unit listed, the selected method of achieving the applicable standard or standards of subsection (C)(3)(a) or (C)(4)(a); and
  - (iii) for permit units subject to subsection (C)(3)(b) or (C)(4)(b), for each permit unit listed, a selection of one of the four options specified in subsection (C)(3)(b) or (C)(4)(b) to achieve compliance with this rule; and
  - (iv) for permit units for which installation of NOx reduction technology by May 31, 1995 is not practicable, a demonstration of why such installation cannot be achieved by that date, as well as a schedule of clearly defined compliance milestones that represent the most expeditious schedule practicable toward final compliance. [no longer relevant]
- (f) "Federal Ozone Non-attainment Area" that portion of San Bernardino County that lies within the lines which begin at:
  - (i) the San Bernardino/Riverside County boundary, running north along the range line common to Range 3 East and Range 2 East;
  - (ii) then west along the township line common to Township 2 North and Township 3 North;
  - (iii) then north along the San Bernardino/Los Angeles County boundary and the San Bernardino / Kern County Boundary;
  - (iv) then east along latitude 35 degrees, 10 minutes north;
  - (v) then south along longitude 115 degrees, 45 minutes west and west along the San Bernardino / Riverside County Boundary(see Map [In 102] 1).
- (d) "Gaseous Fuel" Natural gas, digester gas, landfill gas, methane, ethane, propane, butane, or any gas stored as a liquid at high pressure such as

- liquefied petroleum gas. [Definition obtained from Imperial County APCD, Rule 101 Definitions (2/23/2010)]
- (g) "Heat Input" the chemical heat released due to fuel combustion in a permit unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air. [In 102]
- (he) "High Annual Heat Input Permit Unit" Aa permit unit with an annual heat input greater than or equal to 50,000 million Btu (MMBtu).
- (i) "Higher Heating Value (HHV)" the total heat liberated per mass of fuel burned (Btu per pound), when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions. [In 102]
- "Independent Power Producer" Aa power plant which is not directly regulated by a Public Utilities Commission, which provides power to an electric utility rather than directly to rate-payers, and which is a Qualifying Small Power Production Facility per Public Utility Regulatory Policies Act regulations (18 CFR Ch.1, Subpart B).
- (g) "Liquid Fuel" Any fuel which is a liquid at standard conditions including but not limited to distillate oils, kerosene and jet fuel. Liquefied Gaseous Fuels are not Liquid Fuels. [Definition obtained from Imperial County APCD, Rule 101 Definitions (2/23/2010)]
- (<u>hk</u>) "Low Annual Heat Input Permit Unit" <u>Aa</u> permit unit with an annual heat input less than 50,000 million Btu (MMBtu).
- (il) "NOx Emissions" (NO $\underline{x}$ )  $\underline{T}$ the sum of any oxides of nitrogen which can be measured in the flue gas.
- (m) "Parts per Million (by Volume)" (ppmv) the number of gas molecules of a given species, or group, in one million total gas molecules. [in 102]
- (n) "Permit Unit" any boiler, steam generator or process heater required to have a Permit to Operate pursuant to District Rule 203. [in 102]
- (je) "Process Heater" Aany combustion equipment fired with any fuel, which transfers heat from combustion gases to water or process streams. Process Heaters does not include any dryers in which the material being dried is in direct contact with the products of combustion, such as: cement or lime kilns, glass melting furnaces, or smelters.
- (k) "Solid Fuel": Any fuel which is a solid at standard conditions. [Definition obtained from SJVAPCD, Rule 4352 SOLID FUEL FIRED BOILERS, STEAM GENERATORS AND PROCESS HEATERS Definitions

## (12/11/2011)] [Solid fuel references removed in response to verbal comments from USEPA, 12/20/2017.]

- (q) "Rated Heat Input" the heat input capacity (in MMBtu/hr) specified on the nameplate of the permit unit, unless:
  - (i) the permit unit is limited by permit condition to a lesser heat input than specified on the nameplate, in which case the limiting condition shall be used as the rated heat input; or
  - (ii) the permit unit is operated above the heat input capacity specified on the nameplate, in which case the maximum operated rate shall be used as the rated heat input. [in 102]
- <u>(rl)</u> "Start-up Period" the one hour time period immediately following a continuous period in which fuel flow to the permit unit is zero, or shut off for 30 minutes or longer. [Definition no longer used in Rule.]
- (sm) "Shut-down Period" the one hour time period immediately preceding a continuous period in which fuel flow to the permit unit is zero, or shut off for 30 minutes or longer. [Definition no longer used in Rule.]
- (tnk) "Solar Power Production Facility" Aan independent power producer which is a Solar Thermal Powerplant in which 75 percent (75%) or more of the total energy output is from solar energy and the use of backup fuels, such as oil, natural gas, and coal, does not, in the aggregate, exceed 25 percent (25%) of the total energy input of the facility during any calendar year period.per Public Resources Code §25140. [clarified definition obtained from Public Resources Code §25140]

#### (C) Requirements

- (1) RACT standard versus BARCT standard applicability: RACT standards shall apply to all permit units, unless BARCT standards are applicable to the particular existing permit unit. BARCT standards shall apply to any existing permit units currently permitted to emit more than five tons per day or more than 250 tons per year of NO<sub>x</sub>.
- (2) An <u>oOwner/or-Ooperator</u> of any permit unit(s) subject to subsection (C)(3)(a) or (C)(4)(a) below shall have the option of complying with either the ppmv or pounds per million Btu (lbs/MMBtu) NOx emission limits.
- (3) RACT Standards:
  - (a) High <u>Aannual hHeat iInput permit units</u>, as defined in Section (B), shall not emit:

- (i) carbon monoxide in excess of 400 ppmv; and
- (ii) NO<sub>x</sub> in excess of <del>70-30</del> ppmv, and/or <u>0.036 0.084-lbs/MMBtu of</u> heat input, when operated on <del>gaseous</del> Gaseous <del>fuel</del>Fuel; and
- (iii) NO<sub>x</sub> in excess of 40 ppmv, and/or 0.052 lbs/MMBtu of heat input, when operated on Liquid Fuels; and
- (iviii) NOx in excess of 115 ppmv, and/or 0.150 lbs/MMBtu of heat input, when operated on liquid and/or Solid Ffuels; and fLanguage obtained from SMAQMD Rule 411—Nox from Boilers, Process Heaters and Steam Generators (8/23/07), ICAPCD Rule 400.2—Boilers, Process Heaters and Steam Generators (2/23/2010), and SCAQMD Rule 1146 Emission of Oxides fo Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (11/1/2013)] [Solid fuel references removed from rule pursuant to verbal comments from USEPA, 12/20/2017.]
- (iv) NO<sub>x</sub> in excess of the heat-input weighted average of the limits specified in (C)(3)(a)(ii) and (C)(3)(a)(iii), above, when operated on combinations of Ggaseous and/or Lliquid and/or Ssolid Ffuels.

Sample calculation: <u>[Solid fuel references removed from rule pursuant to verbal comments from USEPA, 12/20/2017.]</u>

$$Emission\ Limit = \frac{(40\ ppmv*x) + (70ppmv*y) + (115ppmv*z)}{x + y + z}$$

#### where

<u>X</u>	=	Annual Heat Input from Gaseous Fuel
y	=	Annual Heat Input from Liquid Fuel
<u>Z</u>	=	Annual Heat Input from Solid Fuel [needed a new fuel
		variable due to breaking apart liquid and solid fuels

- (b) Low <u>Aannual Hheat Iinput permit units</u>, as defined in Section (B), shall:
  - (i) be operated in a manner that maintains stack-gas oxygen (O2) concentrations at less than or equal to 3.0 percent by volume on a dry basis; or
  - (ii) be operated with a stack-gas oxygen trim system set at 3.00±0.15 percent oxygen by volume on a dry basis; or
  - (iii) be tuned at least annually in accordance with the procedure described in Section (I), a modification of the tuning procedure described in Section (I) as approved by the APCO, <u>CARB and USEPA</u>, or the permit unit manufacturer's specified tune-up

procedure, by a technician that is qualified, to the satisfaction of the Air Pollution Control Officer APCO, to perform a tune-up; or [Modified pursuant to verbal comments from USEPA, 12/20/2017.]

(iv) be operated in compliance with the applicable emission levels specified in subsection (C)(3)(a).

#### (4) BARCT Standards:

- (a) High Aannual Heat Input permit units, as defined in Section (B), shall not emit:
  - (i) carbon monoxide in excess of 400 ppmv; and
  - (ii) NOx in excess of 30 ppmv, and/or 0.036 lbs/MMBtu of heat input, when operated on Ggaseous Ffuel; and
  - (iii) NOx in excess of 40 ppmv, and/or 0.052 lbs/MMBtu of heat input, when operated on Lliquid and/or solid-fuels; and
  - (iv) NOx in excess of 70 ppmv, and/or 0.085 lbs/MMBtu of heat input, when operated on Solid Fuels; and *[Language matches SIP approved BARCT Standards from SMAQMD Rule 411 Nox from Boilers, Process Heaters and Steam Generators (8/23/07)] [Solid fuel references removed from rule pursuant to verbal comments from USEPA, 12/20/2017.]*
  - (iv) NOx in excess of the heat-input weighted average of the limits specified in (C)(4)(a)(ii) and (C)(4)(a)(iii), above, when operated on combinations of Ggaseous and/or !Liquid-and/or Ssolid-fuels.

Sample calculation: <u>[Solid fuel references removed from rule pursuant to verbal comments from USEPA</u>, 12/20/2017.]

$$Emission\ Limit = \frac{(30\ ppmv*x) + (40ppmv*y) + (70ppmv*z)}{x + y + z}$$

<u>X</u>	=	Annual Heat Input from Gaseous Fuel
У	=	Annual Heat Input from Liquid Fuel
<u>Z</u>	=	Annual Heat Input from Solid Fuel [needed a new fuel
		variable due to breaking apart liquid and solid fuels]

- (b) Low Annual Hheat Input permit units, as defined in Section (B), -shall:
  - (i) be operated in a manner that maintains stack-gas oxygen concentration at less than or equal to 3.0 percent by volume on a dry basis; or
  - (ii) be operated with a stack-gas oxygen trim system set at 3.00±0.15 percent oxygen by volume on a dry basis; or

- described in Section (I), a modification of the tuning procedure described in Section (I) as approved by the APCO, <u>CARB and USEPA</u>, or the permit unit manufacturer's specified tune-up procedure, by a technician that is qualified, to the satisfaction of the Air Pollution Control Officer <u>APCO</u>, to perform a tune-up; or <u>[Modified pursuant to verbal comments from USEPA, 12/20/2017.]</u>
- (iv) be operated in compliance with the applicable emission levels specified in subsection (C)(4)(a).

#### (5) General Equipment Requirements:

- (a) Owner/s or Ooperators of permit units which simultaneously fire combinations of different fuels, and are subject to the requirements of subsection (C)(3)(a) or (C)(4)(a), shall:
  - (i) install mass flow rate meters in each fuel line; or
  - (ii) install volumetric flow rate meters in conjunction with temperature and pressure probes in each fuel line; or
  - (iii) maintain a fuel log in the form and manner prescribed and approved by the APCO. [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
- (b) Owners—or—Opperators of permit units which employ flue-gas NOx reduction technology, and are subject to the requirements of subsection (C)(3)(a) or (C)(4)(a), shall:
  - (i) install meters as applicable to allow instantaneous monitoring of the operational characteristics of the NOx reduction equipment; or
  - (ii) maintain a log of NOx reduction equipment operational characteristics in the form and manner prescribed and approved by the APCO. [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
- (c) Owners/-or-Ooperators of permit units which are subject to (C)(3)(b) or (C)(4)(b) and choose to comply with (C)(3)(b)(ii) or (C)(4)(b)(ii), respectively, shall install a stack-gas oxygen trim system.

#### (D) Exemptions

Ouring periods of unexpected curtailment of normal Ggaseous Ffuels, permit units subject to the requirements of subsection (C)(3)(a) or (C)(4)(a) which normally burn only Ggaseous Ffuel shall comply with a NOx emission limit of either 150 ppmv or 0.215 pound per million Btu of heat input when burning liquid Liquid or solid-Ffuel. (This exemption shall not exceed the period of natural gas

- curtailment, and specifically <u>excludes includes</u> equipment and emission testing time not exceeding 48 hours per calendar year). <u>[Removed solid fuel reference, modified pursuant to verbal comment from USEPA, 12/20/2017]</u>
- (2) Permit units which are located at <u>S</u>solar <u>P</u>power <u>P</u>production <u>F</u>facilities and are subject to the requirements of subsection (C)(3)(a) shall comply with the following NOx emission limits <u>in lieu of complying with subsection (C)(3)(a)</u>: <u>[Modified pursuant to verbal comments from USEPA, 12/20/2017.]</u>
  - (a) 125 ppmv, when the permit unit is located at SEGS VI or SEGS VII in Kramer Junction and is operating at 40% or less of Rrated Hheat Input; and Modified pursuant to verbal comments from USEPA, 12/20/2017.]
  - (b) 80 ppmv, when the permit unit is located at SEGS II and is operating at 40% or less of Rrated Hheat Iinput; and 70 ppmv, when the permit unit is located at SEGS VI or SEGS VII in Kramer Junction and is operating at more than 40% of Rated Heat Input, or when the permit unit is located at SEGS III, IV, V in Kramer Junction or SEGS VIII or IX in Harper Lake under all operating conditions; and, [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
  - (c) those limits specified in (C)(3)(a), for all other such permit units and operating conditions.
- (3) The provisions of Section (C) of this rule shall not apply to permit units which have no Aannual Hheat I input (Aannual Hheat I input equals zero). The Oowner/Ooperator of any permit unit who wishes to claim an exemption pursuant to this subsection shall meet the record keeping requirements of this rule so as to be able to prove the exemption status.
- (4) Units which are subject to District Rules 1158 or 1161 are exempt from this rule.
- (5) Units located outside of the Federal Ozone Non-Attainment Area (FONA) are exempt from this rule.
- (E) Monitoring and Records
  - (1) Emissions Compliance Testing:
    - (a) Frequency: All permit units covered under subsections (C)(3) and (C)(4) shall demonstrate compliance through emission compliance testing not less than once every 12 months, except that permit units complying with subsection (C)(3)(b)(iii) or (C)(4)(b)(iii) shall be tuned not less than once every 12 months, and permit units claiming an exemption pursuant to subsection (D)(1) which burn a secondary fuel for less than 720

cumulative hours in the twelve month consecutive period prior to testing shall not be required to perform compliance testing for that fuel.

#### (b) Procedures:

- (i) Compliance testing required by this rule shall follow the administrative procedures outlined in the District's Compliance Test Procedural Manual. All emission determinations shall be made as stipulated in the test protocol accepted by the District.
- (ii) Emission determinations shall include, at a minimum, one emission compliance test conducted at 90% of the maximum firing rate allowed by the District permit or at normal operating conditions as determined and approved by the APCO. [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
- (iii) No compliance determination shall be established based on data obtained from compliance testing, including integrated sampling methods, during a start-up period or shut-down period.
- (iv) All ppmv emission limits specified in subsections (C)(3)(a), (C)(4)(a) and (D)(1) are referenced at dry stack-gas conditions and 3.0 percent by volume stack-gas oxygen.
- (v) All lbs/MMBtu NOx emission rates shall be calculated as pounds of nitrogen dioxide per MMBtu of heat input.
- (vi) All emission concentrations and emission rates shall be based on hourly averages.

#### (2) Records and Reporting

- (a) For all permit units subject to this rule, the Oowners/Ooperators shall monitor and record for each permit unit the HHV-High Heat Value and cumulative annual usage of each fuel. The cumulative annual usage of each fuel shall be monitored from utility service meters, purchase or tank fill records, or by any other acceptable methods, as approved by the Air Pollution Control OfficerAPCO. A statement of the heat input for the previous calendar year shall be submitted to the District by March 1 each year. [clarity] [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
- (b) For permit units exempt from subsection (C)(3)(a) or (C)(4)(a) in accordance with subsection (D)(1), the Oowner/Ooperators shall monitor and record for each permit unit the cumulative annual hours of operation on each Liquid or Solid Ffuel. [Solid fuel references removed from rule pursuant to verbal comments from USEPA, 12/20/2017.]

- (c) All data shall be kept current and on site for a minimum of two-five years, and provided to District or state personnel on request. [Modified pursuant to verbal comments from USEPA, 12/20/2017.]
- (d) The Oowners/or-Ooperators of permit units subject to this rule shall submit all required compliance test reports to the District.
- (e) For each permit unit complying with subsection (C)(3)(b)(iii) or (C)(4)(b)(iii), records verifying that the tune-up has been performed for each fuel burned shall be maintained on site for <u>fivetwo</u> years. If a different tune-up procedure from that described in Section (I) is used, then a copy of this procedure shall be kept on site for <u>fivetwo</u> years. Such records shall be provided on request by the APCO. <u>[Modified pursuant to verbal comments from USEPA, 12/20/2017.]</u>
- (f) Test reports shall include the operational characteristics of all flue-gas NOx reduction equipment.

#### (F) Test Methods

- (1) Compliance with the NOx, carbon monoxide and oxygen requirements of Section C shall be determined using the following test methods:
  - (a) Oxides of Nitrogen EPA Method 7E or ARB Method 100
  - (b) Carbon Monoxide EPA Method 10 or ARB Method 100
  - (c) Stack Gas Oxygen <u>EPA Method 3</u> or <u>3A</u> or <u>ARB Method 100</u> (d) NOx Emission Rate (Heat Input Basis) - <u>EPA Method 19</u>
- (2) HHV determination shall be by one of the following test methods:
  - (a) <u>ASTM D 2015-85</u> for solid fuels; or [Removing all reference to solid fuels, per verbal discussion with EPA on 12/20/2017]
  - (ab) ASTM D 240-87 or ASTM D 2382-88 for liquid hydrocarbon fuels; or
  - (<u>be</u>) <u>ASTM D 1826-88</u>, or <u>ASTM D 1945-81</u> in conjunction with <u>ASTM D</u> 3588-89 for <u>G</u>gaseous <u>F</u>fuels.

#### (G) Compliance Schedule

- (1) The owner or operator of permit units subject to this rule shall fulfill the following increments of progress:
  - (a) On or before February 28, 1995, submit an Emissions Control Plan.

- (b) Install any required NOx reduction technology no later than May 31, 1995, unless such installation was demonstrated to be impracticable in the Emissions Control Plan. Those permit units for which installation by May 31, 1995 is not practicable shall fulfill, at a minimum, the following interim measures:
  - (i) On or before February 28, 1995, submit a complete application to the District for an Authority to Construct the NOx reduction technology; and
  - (ii) On or before May 31, 1995, provide evidence that equipment has been ordered; and
  - (iii) On or before January 31, 1996, take delivery of equipment; and
  - (iv) Actual NOx reduction technology shall be installed as soon as possible but no later than March 31, 1996.
- (c) Demonstrate final compliance with all applicable standards and requirements of the rule:
  - (i) by May 31, 1995 for permit units with NOx control technology in place or permit units subject to subsection (C)(3)(b) or (C)(4)(b); or
  - (ii) within six months of installation of NOx reduction technology. [Dates are no longer relevant to this rule]
- (12) The Oewner/or-Oeperator of a permit unit which becomes subject to the requirements of subsection (C)(3)(a) or (C)(4)(a) by exceeding the Aannual Hheat Input thresholds in subsection (B)(1)(h) for a calendar year, or by operating the permit unit so that an exemption pursuant to (D)(3) no longer applies, shall fulfill the following increments of progress:
  - (a) On or before December 31 of the calendar year immediately following the year that the <u>Aannual Hheat Iinput</u> threshold was exceeded or the permit unit commenced operation, submit an Emissions Control Plan containing the information outlined in subsection (B)(1)(e).
  - (b) No later than three calendar years following the submission of the Emissions Control Plan, demonstrate final compliance with all applicable standards and requirements of the rule.
- (23) Failure to perform interim measures as set forth in a submitted Emissions Control Plan shall constitute a violation of this rule.
- (H) Severability of Portions of this Rule

If any portion of this rule is found to be invalid or unenforceable, such finding shall have no effect on the validity and enforceability of the remaining portions of the rule, which are severable and shall continue to be in full force and effect.

#### (I) Tuning Procedure

- (1) Nothing in these Tuning Procedures shall be construed to require any act or omission that would result in unsafe conditions or would be in violation of any regulation or requirement established by <a href="Factory Mutual">Factory Mutual</a>, <a href="Industrial Risk Insurers">Industrial Risk Insurers</a>, <a href="National Fire Prevention Association">National Fire Prevention Association</a>, the <a href="California Department of Industrial Relations">California Department of Industrial Relations</a> (Occupational Safety and Health Division), the <a href="Federal Occupational Safety">Federal Occupational Safety</a> and Health Administration, or other relevant regulations and requirements.
- (2) Tuning Procedure for Forced-Draft Permit units<sup>4</sup>
  - (a) Operate the permit unit at the firing rate most typical of normal operation. If the permit unit experiences significant load variations operate variations, operate it at its average firing rate. <u>[removed extra space]</u>
  - (b) At this firing rate, record stack gas temperature, oxygen concentration, and CO concentration (for Ggaseous Ffuels) or smoke-spot number (for liquid Liquid fuelsFuels), and observe flame conditions after permit unit operation stabilizes at the firing rate selected. If the excess oxygen in the stack gas is at the lower end of the range of typical minimum values, and if the CO emissions are low and there is no smoke, the permit unit is probably operating at near optimum efficiency at this particular firing rate. However, complete the remaining portion of this procedure to determine whether still lower oxygen levels are practical.
  - (c) Increase combustion air flow to the furnace until stack gas oxygen levels increase by one to two percent over the level measured in subsection (I)(2)(b). As in (I)(2)(b), record the stack gas temperature, CO concentration (for Ggaseous Ffuels), or smoke-spot number (for liquid Liquid fuelsFuels), and observe flame conditions for these higher oxygen levels after Beoiler operation stabilizes.
  - (d) Decrease combustion air flow until the stack gas oxygen concentration is at the level measured in (I)(2)(b). From this level gradually reduce the combustion air flow, in small increments. After each increment, record the stack gas temperature, oxygen concentration, CO concentration (for

<sup>&</sup>lt;sup>4</sup>This tuning procedure is based on a tune-up procedure developed by KVB, Inc. for the USEPA.

The smoke-spot number can be determined with ASTM test method D-2156 or with the Bacharach method.

Typical minimum oxygen levels for boilers at high firing rates are: For natural gas: 0.5 - 3%; 2. For Liquid Fuels:

Ggaseous Ffuels) and smoke-spot number (for liquid Liquid fuelsFuels). Also, observe the flame and record any changes in its condition.

- (e) Continue to reduce combustion air flow stepwise, until one of these limits is reached:
  - (i) Unacceptable flame conditions such as flame impingement on furnace walls or burner parts, excessive flame carryover, or flame instability.
  - (ii) Stack gas CO concentrations greater than 400 ppmv.
  - (iii) Smoking at the stack.
  - (iv) Equipment-related limitations such as low windbox/furnace pressure differential, built in air-flow limits, etc.
- (f) Develop an O2/CO curve (for <u>Ggaseous Ffuels</u>) or O2/smoke curve (for <u>L</u>liquid <u>fuelsFuels</u>) using the excess oxygen and CO or smoke-spot number data obtained at each combustion air flow setting.
- (g) From the curves prepared in (I)(2)(f), find the stack gas oxygen levels where the CO emissions or smoke-spot number equal the following values:

Fuel	Measurement	Value
Gaseous	CO Emissions	400 ppmv
#1 and #2 oils	smoke-spot number	number 1
# 4 Oil	smoke-spot number	number 2
# 5 Oil	smoke-spot number	number 3
Other oils	smoke-spot number	number 4

The above conditions are referred to as the CO or smoke thresholds, or as the minimum excess oxygen levels.

Compare this minimum value of excess oxygen to the expected value provided by the combustion permit unit manufacturer. If the minimum level found is substantially higher than the value provided by the combustion permit unit manufacturer, burner adjustments can probably be made to improve fuel and air mix, thereby allowing operations with less air.

(h) Add 0.5 to 2.0 percent to the minimum excess oxygen level found in (I)(2)(g) and reset burner controls to operate automatically at this higher stack gas oxygen level. This margin above the minimum oxygen level

- accounts for fuel variations, variations in atmospheric conditions, load changes, and nonrepeatability or play in automatic controls.
- (i) If the load of the combustion permit unit varies significantly during normal operation, repeat (I)(2)(a) through (h) for firing rates that represent the upper and lower limits of the range of the load. Because control adjustments at one firing rate may affect conditions at other firing rates, it may not be possible to establish the optimum excess oxygen level at all firing rates. If this is the case, choose the burner control settings that give the best performance over the range of firing rates. If one firing rate predominates, setting should optimize conditions at the rate.
- (j) Verify that the new settings can accommodate the sudden load changes that may occur in daily operation without adverse effects. Do this by increasing and decreasing load rapidly while observing the flame and stack. If any of the conditions in (I)(2)(e) result, reset the combustion controls to provide a slightly higher level of excess oxygen at the affected firing rates. Next, verify these new settings in a similar fashion. Then make sure that the final control settings are recorded at steady-state operating conditions for future reference.
- (k) When the above checks and adjustments have been made, record data and attach combustion analysis to permit unit records. Indicate the name and title of the person performing the tune-up, the date the tune-up was performed, and sign the record.
- (3) Equipment Tuning Procedure for Natural Draft Fired Permit units
  - (a) Preliminary Analysis
    - (i) CHECK THE OPERATING PRESSURE OR TEMPERATURE. Operate the permit unit at the lowest acceptable pressure or radiation losses. Determine the pressure or temperature that will be used as a basis for comparative combustion analysis before and after tune\_up.
    - (ii) COMBUSTION ANALYSIS.

      Perform an "as is" combustion analysis (CO2, O2, etc.) with a warmed up permit unit at high and low fire, if possible. In addition to data obtained from combustion analysis, also record the following:
      - a. Inlet fuel pressure at burner (at high & low fire); and
      - b. Draft above draft hood or barometric damper (at high, medium, and low settings); and
      - c. Steam pressure, water temperature, or process fluid pressure or temperature entering and leaving the permit unit.
      - d. Permit unit rate if meter is available.

- (b) Adjustments: while taking combustion readings with a warmed up permit unit operated at the Reated Heat Input, perform checks and adjustments as follows:
  - (i) Adjust permit unit to fire at rate; record fuel manifold pressure.
  - (ii) Adjust draft and/or fuel pressure to obtain acceptable, clean combustion at high, medium and low firing rates. The CO value should always be below 400 ppmv at 3% O2. If CO is high make necessary adjustments.
  - (iii) Check to ensure permit unit light offs are smooth and safe. A reduced fuel pressure test at both high and low fire should be conducted in accordance with the manufacturer's instructions and maintenance manuals.
  - (iv) Check and adjust operations of modulation controller. Ensure proper, efficient and clean combustion through the range of firing rates.
  - (v) When above adjustments and corrections have been made, record all data.

When above adjustments and corrections have been made, record all data.

#### When above adjustments and corrections have been made, record all data.

- (c) Final Test: Perform a final combustion analysis with a warmed up permit unit at high, medium and low firing rates, whenever possible. In addition to data from combustion analysis, also check and record:
  - (i) fuel pressure at burner (at high, medium and low settings); and
  - (ii) draft above draft hood or barometric damper (at high, medium, and low settings); and
  - (iii) steam pressure, water temperature, or process fluid pressure or temperature entering and leaving the permit unit; and
  - (iv) permit unit rate if meter is available.

When the above checks and adjustments have been made, record data and attach combustion analysis to permit unit records. Indicate the name and title of the person performing the tune-up, the date the tune-up was performed, and sign the record.

#### See SIP Table at http://www.mdaqmd.ca.gov/

[SIP information: Approved 04/10/00, 65 FR 18901, 40 CFR 52.220(c)(268)(8)(i)(B)(1); Approved 11/1/96, 61 FR 56470, 40 CFR 52.220(c)(207)(i)(D)(3)]

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# **Appendix "B"**Public Notice Documents

- 1.
- Proof of Publication Daily Press, December 22, 2017 Proof of Publication Riverside Press Enterprise, December 22, 2017 2.

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### PROOF OF PUBLICATION

(2015.5 C.C.P.)

### STATE OF CALIFORNIA, County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the publisher of the DAILY PRESS, general circulation, newspaper of published in the City of Victorville, County of San Bernardino, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under the date of November 21, 1938, Case number 43096, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

December 22

All in the year 2017.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated this: 22nd day of December,

Signature Leslie Jacobs

### This space is the County Clerk's Filing Stamp

RECEIVED MOJAVE DESERT AQMD CLERE OF THE BOARD

JAN 0 3 2018

### Proof of Publication of NOTICE OF HEARING

CHICK OF MEARING MOTICE IS HEREBY GIVEN that the Givening Board of the Majawa (Peerl Air Qual Ity Management bisinet (MDA (MD) will conduct

(MDW)(AD) will consider a public hearing on Sing-ary 22, Julia 4 10 30 AM. to consider the pro-posed amendment of Single 102 - Orthodoric of Trom, Rula 1114 - Mood Prints, Prints and Process Healthy, and Rula 1161 - Portland Camera Kings.

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### NOTICE OF HEARING

**NOTICE IS HEREBY GIVEN** that the Governing Board of the Mojave Desert Air Quality Management District (MDAQMD) will conduct a public hearing on January 22, 2018 at 10:00 A.M. to consider the proposed amendment of Rule 102 – *Definition of Terms*, Rule 1114 – *Wood Products Coating Operations*, Rule 1157 – *Boilers and Process Heaters*; and Rule 1161 – *Portland Cement Kilns*.

SAID HEARING will be conducted in the Governing Board Chambers located at the MDAQMD offices 14306 Park Avenue, Victorville, CA 92392-2310 where all interested persons may be present and be heard. Copies of the proposed rules and the associated staff reports are on file and may be obtained from the Executive Office Manager at the MDAQMD Offices. Written comments may be submitted to Brad Poiriez, APCO at the above office address. Written comments should be received no later than January 18, 2018 to be considered. If you have any questions regarding Rules 102 or 1114 you may contact Tracy Walters at (760) 245-1661 extension 6122 for further information. If you have questions regarding Rule 1157 you may contact Michelle Zumwalt (760) 245-1661 extension 5756. If you have questions regarding Rule 1161 you may contact Alan De Salvio at (760) 245-1661 extension 6726. Traducción esta disponible por solicitud.

The proposed amendment of Rule 102 – *Definition of Terms* is necessary to shift common definitions used in the MDAQMD rulebook to Rule 102, and to update them for consistency and clarity.

Rules 1114, 1157, and 1161 are proposed for amendment to satisfy 42 U.S.C. §§7511a (Federal Clean Air Act (FCAA) §182) which requires that ozone non-attainment areas implement Reasonably Available Control Technology (RACT) for sources that are subject to Control Techniques Guidelines (CTG) and for major sources of ozone precursors.

Pursuant to the California Environmental Quality Act (CEQA) the MDAQMD has determined that a Categorical Exemption (Class 8 – 14 Cal. Code Reg §15308) applies and has prepared a *Notice of Exemption* for this action.

## THE PRESS-ENTERPRISE

1825 Chicago Ave, Suite 100 Riverside, CA 92507 951-684-1200 951-368-9018 FAX

PROOF OF PUBLICATION (2010, 2015.5 C.C.P)

Publication(s): The Press-Enterprise

PROOF OF PUBLICATION OF

Ad Daso: /

Lanna oliven of the United States. I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am an authorized representative of THE PRESS-ENTERPRISE, a nowspaper in general circulation, printed and published delivin the County of Rivers de. and which newspaper has been adjudicated a newspaper of general directation by the Superior Court of the County of Riverside, State of California, under date of April 25, 1952, Case Number 54446, under date of March 29, 1967, Case Number 63673, under date of August 25, 1995, Case Number 267864, and under deje of September 16, 2013, Case Number RIC 1306013; that the notice, of which the annexed is a printed capy. Nex been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit-

12/22/2017

I certify (or declare) under ponalty of perjury that the foregoing is true and correct.

Date: December 22, 2017 At: Riverside, California

Legal Achiertising Representative The Proce Enterprise

MOJAVE DESERT AQMID 14303 PARK AVE ATTN: D HERNANDEZ VICTORVILLE, CA 92392

Ad Number: 0011062463-01

P.O. Number:

Ad Copy:

#### NOTICE OF HEARING

NOTICE IS HEREBY GIVEN that the Coverning Scand of the Malove Decent A.r. Quality Management District (MDAQWD) will conduct a subbid tearing on January 22, 298 ct 10:10 A.N. to care der the processes amendment of Note Not Conference on the Processes amendment of Note Note Conference on Terror, put 1114 — Wood Products Conference, Rule 1137 — Solies and Process Hatters one Rule 1137 — Portlant Cameral Kilna.

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CA 9399-231d where all interested parents may be prevent on the force. Capits and the section of the processor rule and the sectional staff reports on a fit gat may be otherwise from the Eventuer. Philosophic framework of the parents of the parents

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Pursuant to the California Environmental Quality Act (CEQA) the MDAQMD has elatermined that a Catenorical Exemption (Class 8 - 14 Cct. Code Res \$1508) optiles and has proposed a Notice of Exemption for this action.

RECEIVED MOJAVE DESERT AQMD CLERK OF THE BOARD

JAN 0 3 2018

### NOTICE OF HEARING

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The proposed amendment of Rule 102 – *Definition of Terms* is necessary to shift common definitions used in the MDAQMD rulebook to Rule 102, and to update them for consistency and clarity.

Rules 1114, 1157, and 1161 are proposed for amendment to satisfy 42 U.S.C. §§7511a (Federal Clean Air Act (FCAA) §182) which requires that ozone non-attainment areas implement Reasonably Available Control Technology (RACT) for sources that are subject to Control Techniques Guidelines (CTG) and for major sources of ozone precursors.

Pursuant to the California Environmental Quality Act (CEQA) the MDAQMD has determined that a Categorical Exemption (Class 8 – 14 Cal. Code Reg §15308) applies and has prepared a *Notice of Exemption* for this action.

## Appendix "C"

## Public Comments and Responses

Verbal comments received by the USEPA on a conference call on December 20, 2017, which were in regard to removing solid fuels and APCO discretion. Adjustments were made to rule based on conversation, and all sections adjusted have bracketed italicized comments in response to each, acknowledging USEPA verbal comments.

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## Appendix "D"

## California Environmental Quality Act Documentation

- 1. Notice of Exemption San Bernardino County
- 2. Notice of Exemption Riverside County

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Mojave Desert Air Quality Management District

14306 Park Avenue, Victorville, CA 92392-2310 QSTED 760.245.1661 • fax 760.245.2699

Posted On: 01/29/8

Visit our web rite. http://www.mdaqmd.cc.gov Brad Poiricz, Executive Director

Receipt No: 3W-01292UK-059

NOTICE OF EXEMPTION

TO:

County Clerk

San Bernardino County 385 N. Arrowhead, 2<sup>nd</sup> Floor

San Bernardino, CA 92415

FROM: Mojave Desert

Air Quality Management District

14306 Park Ave

Victorville, CA 92392-2310

X MDAQMD Clerk of the Governing Board

PROJECT TITLE: .Amendment of: Rule 1157 - Boilers and Process Heaters

PROJECT LOCATION - SPECIFIC: San Bernardino County portion of the Mojave Desert Air Basin and Palo Verde Valley portion of Riverside County.

PROJECT LOCATION - COUNTY: San Bernardino and Riverside Counties

DESCRIPTION OF PROJECT: Rule 1157 is proposed for amendment to satisfy 42 U.S.C. §§7511a (Federal Clean Air Act (FCAA) §182) which requires that ozone non-attainment areas implement Reasonably Available Control Technology (RACT) for sources that are subject to Control Techniques Guidelines (CTG) and for major sources of ozone precursors.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Mojave Desert AQMD

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: Mojave Desert AQMD

#### EXEMPT STATUS (CHECK ONE)

Ministerial (Pub. Res. Code §21080(b)(1); 14 Cal Code Reg. §15268)

Emergency Project (Pub. Res. Code §21080(b)(4); 14 Cal Code Reg. §15269(b))

X Categorical Exemption – Class 8 (14 Cal Code Reg. §15308)

REASONS WHY PROJECT IS EXEMPT: The proposed amendments to Rule [157] is a exempt from CEQA review because the amendments will not create any adverse impacts on the environment. Because there is no potential that the amendments might cause the release of additional air contaminants or create any adverse environmental impacts, a Class 8 categorical exemption (14 Cal. Code Reg. §15308) applies.

LEAD AGENCY CONTACTOR	ERSON: Brad Poiriez	PHONE: (760) 245-1661	
SIGNATURE: Simly	TITLE: Exe	TITLE: Executive Director DATE: 01/22/201	
DATE RECEIVED FOR FILM	KG:		

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FILED/POSTED County of Riverside Peter Aldana Assessor-County Clerk-Recorder

Brad Poiriez, Executive Director

FEB 0 5 2018

NOTICE OF EXEMPTION

TO:

Clerk/Recorder Riverside County 3470 12th St. Riverside, CA 92501 FROM: Mojave Desert

Air Quality Management District

.4306 Park Ave

Victorville, CA 92392-2310

X MDAQMD Clerk of the Governing Board

PROJECT TITLE: Amendment of: Rule 1157 - Boilers and Process Heaters

PROJECT LOCATION - SPECIFIC: San Bernardino County portion of the Mojave Desert Air Basin and Falo Verde Valley portion of Riverside County.

PROJECT LOCATION - COUNTY: San Bernardino and Riverside Counties

DESCRIPTION OF PROJECT: Rale 1157 is proposed for amendment to satisfy 42 U.S.C. §§7511a (Federal Clean Air Act (FCAA) §182) which requires that ozone non-attainment areas implement Reasonably Available Control Technology (RACT) for sources that are subject to Control Techniques Guidelines (CTG) and for major sources of ozone precursors.

NAME OF PUBLIC AGENCY APPROVING PROJECT: Mojave Desert AQMD

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: Mojave Desert AQMD

#### EXEMPT STATUS (CHECK ONE)

Ministerial (Pub. Res. Code §2108C(b)(1); 14 Cal Code Reg. §15268) Emergency Project (Pub. Res. Code §21080(b)(4); 14 Cal Code Reg. §15269(b)) X Categorical Exemption - Class 8 (14 Cal Code Reg. §15308)

REASONS WHY PROJECT IS EXEMPT: The proposed amendments to Rule 1157 is exempt from CEQA review because the amendments will not create any adverse impacts on the environment. Because there is no potential that the amendments might cause the release of additional air contaminants or create any adverse environmental impacts, a Class \$ categorical exemption (14 Cal. Code Reg. §15308) applies.

LEAD AGENCY CONTACTPERS	ON: Brad Poiriez PHONE: (750) 245-1661
SIGNATURE: B-LK)	TITLE: Executive Director DATE: 01/22/2018
DATE RECEIVED FOR FILING:	

## **Appendix "E"**Bibliography

The following documents were consulted in the preparation of this staff report.

### **CONTROL TECHNIQUES GUIDELINES (CTG's):**

- NOx Emission from Process Heaters (EPA-453/R-93-034 September 1993)
- NOx Emissions from Industrial, Commercial & Institutional Boilers (EPA-453/R-94-022 March 1994)

### ALTERNATIVE CONTROL TECHNIQUES

• NOx Emissions from Utility Boilers (EPA-453/R-94-023 March 1994)

### **PUBLIC RESOURCES CODE §25140**

### AIR DISTRICT RULES

- Imperial County Air Pollution Control District (ICAPCD)
  - o Rule101 Definitions (82 FR 26594, 06/08/2017), and
  - o Rule 400.2 *Boilers, Process Heaters and Steam Generators* (78 FR 896, 01/07/2013);
- Sacramento Metro Air Quality Management District (SMAQMD)
  - Rule 411 *NOx from Boilers, Process Heaters and Steam Generators* (74 FR 20880, 05/06/2009);
- San Joaquin Air Pollution Control District (SJAPCD)
  - o Rule 4352 *Solid Fuel Fired Boilers, Steam Generators and Process Heaters* (77 FR 66548, 11/06/2012); and
- South Coast Air Quality Management District (SCAQMD)
  - o Rule 1146 Emission of Oxides of Nitrogen from industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (79 FR 57442, 11/01/2013).

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